REMARKS

I. STATUS OF THE CLAIMS

Claims 1-82 are pending in the application.

Claims 1, 15, 22, 31, 40, 47 54 60, 66, 74 and 82 are independent claims, presently under examination.

Claims 65, 69-73 and 77-81 are objected to.

Claims 1-82 stand rejected under 35 U.S.C. § 102.

Claims 1-82 stand rejected under 35 U.S.C. § 103.

Claim 65, 69-73 and 77-81 have been amended, and are neither intended to limit the claims in any aspect nor are intended for any statutory requirements.

II. INFORMATION DISCLOSURE STATEMENT

An Information Disclosure Statement in compliance with 37 CFR 1.97 and 1.98 has been filed concurrently herewith.

III. CLAIMS 1-34 ARE AMENDED TO OVERCOM THE OBJECTION

Claims 65, 69-73 and 77-81 were objected due to the following informalities pointed out by the Examiner:

> Claims 65, 69-73 and 77-81 are objected to because of the following informalities: In instant claims 65, 69-73 and 77-81, the phrase "The method of" should be amended to recite "The composition of", since independent claims 60, 66, and 74 are drawn to composition claims, and not method claims. Appropriate correction is required.
>
> (See Office Action, para. 2, page 3)

Claims 5, 69-73 and 77-81 have been amended according to the Examiner's recommendation, as noted above so as correct the obvious formalities.

IV. CLAIMS 1-82 ARE NOT ANTICIPATED UNDER 35 U.S.C. § 102(b) BY PRIOR ART AS CITED; AND CLAIMS 1-82 ARE PATENTABLE UNDER 35 U.S.C. § 103 OVER PRIOR ART AS CITED BECAUSE THE APPLIED PRIOR ART AS A WHOLE FAILS TO SUGGEST THE APPLICANTS' INVENTION.

Claims 1-82 are not anticipated under 35 U.S.C. § 102(b) by prior art as cited; and claims 1-82 are patentable under 35 U.S.C. § 103 over prior art as cited because the applied prior art as a whole fails to suggest the applicants' invention discussed below.

Claims 1-82 were rejected on the basis of 35 U.S.C 102(b) by using the Bennett WO 01/40547, 6,033,553 and 6,217,742, Tokes 6,022,408 and Foltz et al. 5,985,011 patents. The below detailed response shows that these references do not teach the corrosion protection of inhibition for metals in cementitious materials by lithium nitrate or other salts.

Claims 1-82 were rejected on the basis of 35 U.S.C 103(a) by the same above stated references. The below detailed response shows that these references neither use or suggest the use of lithium nitrate or other salts as corrosion protection or inhibition for metals in cementitous materials.

Claims 1-82 were rejected under 35 U.S.C. § 102(b) as being anticipated by Bennett, WO 01-40547; Bennett, U.S. Patent No. 6,033,553; Bennett, U.S. Patent No. 6,217,742; Stokes et al, U.S. Patent No. 6,022,408; and Foltz et al, U.S. Patent No. 5,985,011.

In claims 1-82, the submitted invention is directed to a "method for preventing the corrosion of metals embedded in a cementitious material." The method includes a step for adding lithium nitrate to a cementitious material for preventing or inhibiting corrosion of embedded metals.

Regarding the rejection of claims 1-82 under 35 U.S.C. § 102(b) as anticipated by Bennett, WO 01-40547 reference within is directed to a method of cathodic protection for reinforced concrete. Corrosion protection is provided by either by passing a current through the reinforcing steel rebar within the concrete or by the use of an active metal (Zn or Al) thermally applied to the surface of the concrete. A lithium salt is added to the concrete to

increase or improve the conductivity of the concrete to enhance current flow. Further, lithium salts are applied externally to the conductive metal and migrate by capillary action to the interface of the applied external anode and the concrete, depositing the lithium salt at the interface.

Thus, in Bennett, WO 01-40547, the lithium salt functions as a current enhancing agent and a humectant to absorb moisture from the atmosphere to substantially increase current delivery from the anode. The lithium salt itself does not provide corrosion protection or inhibition. Unlike the claimed invention, Bennett, WO 01-40547, does not teach that lithium salt will provide corrosion protection for metals embedded in cementitious material.

Claim 1-82 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bennett, WO 01-40547; Bennett, U.S. Patent No. 6,033,553; Bennett, U.S. Patent No. 6,217,742; Stokes et al, U.S. Patent No. 6,022,408; and Foltz et al, U.S. Patent No. 5,985,011. The Applicant respectfully traverses these rejections.

For a prima facie case of obviousness, there must be (1) a combination of references that must show all the features of the claimed invention, (2) some suggestion or motivation in the references or in the art to modify or combine teachings, and (3) a reasonable chance of success in combining the teachings of the references. The references cited do not show all the features of the claimed invention nor a proper motivation to combine the references.

The Office Action urges that it would have been obvious to the skilled artisan to produce the claimed composition, as the reference teaches each of the claimed ingredients within the claimed proportions.

Applicant submits, however, the references do not teach or suggest the feature of adding only lithium nitrate for preventing corrosion of embedded metals in cementitious

material. Nor do the references provide or note a motivation for adding lithium nitrate by itself to prevent corrosion of embedded metals in cementitious material.

In Bennett, WO 01-40547, the lithium salt functions as a current enhancing agent and a humectant to absorb moisture from the atmosphere to substantially increase current delivery from the anode. The lithium salt itself does not provide corrosion protection or inhibition. Unlike the claimed invention, Bennett, WO 01-40547, does not teach that lithium salt will provide corrosion protection for metals embedded in cementitious material. Further, Bennett, WO 01-40547, does not suggest adding lithium salt alone without cathodic means will provide corrosion protection of embedded metals.

The lithium salt is not provided for corrosion protection. The lithium salt in no way is described as providing corrosion inhibition to the reinforcing steel in the concrete. Therefore Bennett patent, WO 01/40547 does not teach us that a lithium salt will provide corrosion protection of reinforcing steel in concrete.

As for the rejection of claims 1-82 under 35 U.S.C. § 102(b) as anticipated by Bennett, U.S. Patent No. 6,033,553, the reference is directed to a "[a] method of cathodic protection for reinforced concrete." Similar to Bennett WO 01-40547, a lithium salt is added to the concrete to increase the conductivity of the concrete to enhance current flow and applied externally to the conductive metal resulting in the depositing of the lithium salt at the interface between an external anode and the concrete.

Therefore, in Bennett '553, the lithium salt functions as a current enhancing agent and a humectant to increase current delivery from the anode. The lithium salt does not provide corrosion protection or inhibition. Bennett '553 does not teach that lithium salt will provide corrosion protection for metals embedded in cementitious material.

As for the rejection of 1-82 under 35 U.S.C. § 103(a), as obvious in Bennett '553, the lithium salt functions as a current enhancing agent and a humectant to increase current delivery from the anode. The lithium salt does not provide corrosion protection or inhibition. Bennett '553 does not teach that lithium salt alone will provide corrosion protection for metals embedded in cementitious material. It also does not suggest or motivate adding lithium salt alone without using a current or electrodes to prevent corrosion of embedded metals.

Referring to the rejections of claims 1-82 under 35 U.S.C. § 102(b) as anticipated by Bennett, U.S. Patent No. 6,217,742, the reference is directed to "[a] method of cathodic protection for reinforced concrete" by cathodically polarizing the steel rebar embedded in concrete. Corrosion protection is provided by lowering the potential of the steel rebar embedded in concrete. The lithium salts are not used for protecting the steel rebar. The lithium salts are added to enhance the conductive properties of the cement or concrete and to protect the cement against acidic products.

Thus, the lithium salt in Bennett '742 does not provide corrosion protection or inhibition. The lithium salt in Bennett '742 protects the cement and increases its conductivity. Bennett '742 does not teach that lithium salt will provide corrosion protection for metals embedded in cementitious material.

Further, the Applicant claims in his preambles for claims 1, 15, 22, 31, 40, 47, and 54 an invention directed to a "method for preventing the corrosion of metals embedded in a cementitious material." The Applicant stated in his preamble that the claimed method which includes a step for adding lithium nitrate to a cementitious material was for preventing corrosion of embedded metals. The lithium nitrate itself prevents corrosion. Unlike the cited references, lithium nitrate need not act in conjunction with cathodic protection. A "preamble may provide content for claim construction, particularly, where...that preamble's statement of intended use forms the basis for distinguishing the prior art in the patent's prosecution

history." *Metabolite Labs., Inc. v. Corp. of Am. Holdings*, 370 F.3d 1354, 1358-62, 71 USPQ2d 1081, 1084-87 (Fed. Cir. 2004).

As with patent No. 6,033,553, the lithium salts are not used for protection of the reinforcing steel in concrete. They are added to enhance the conductive properties of the "electrolyte" surrounding the anode of the cathodic protection system. In this case, the cement or concrete surrounding the discrete anode is made to facilitate diffusion by addition of lithium salts which increase its conductivity and permeability. The primary function of the lithium salt is to prevent the acidic products of the discrete anode from destroying the cement surrounding the discrete anode, not to protect the steel from corrosion. This reference doe not teach us about the proposed invention.

As for § 103(a) rejection the lithium salt in Bennett '742 does not provide corrosion protection or inhibition. The lithium salt in Bennett '742 protects the cement and increases its conductivity. Bennett '742 does not teach that lithium salt will provide corrosion protection for metals embedded in cementitious material. Bennett '742 does not suggest or motivate adding lithium nitrate for preventing corrosion of embedded metals.

As to the rejection of claims 1-82 under 35 U.S.C. § 102(b) as anticipated by Stokes et al, U.S. Patent No. 6,022,408, the reference discloses a process for making cement and concrete comprising adding a lithium containing material, such as lithium nitrate, to the cement, heating the cement to form a clinker, and cooling the clinker. The lithium salts are added to prevent or lessen alkali-silica reaction in the resulting concrete. Alkali-silica reaction can result in formation of a paste that has a higher volume than the reacting materials which may eventually cause cracking and spalling on surrounding concrete.

Stokes et al '408 teaches that the use of lithium salt to prevent or inhibit alkali-silica reactions (ASR). The adding lithium salts is not limited to only cementitious material with embedded metals. Lithium salts can prevent alkali-silica reactions in cementitious material

with no embedded metals. Thus, Stokes et al '408 does not teach that adding lithium salts will prevent corrosion of embedded metals in concrete.

The use of lithium salt for the ASR is not related to reinforcing steel in concrete and can be used in concrete containing no steel at all. The ASR is a chemical reaction between the cement and aggregate. The lithium salt is added to concrete to prevent destruction of the concrete through a chemical reaction which is known to occur in some susceptible concrete mixes. The lithium salt is not added to the concrete to protect the reinforcing steel. This reference does not teach us that lithium nitrate will effect an electrochemical process and provide corrosion protection of reinforcing steel.

As for §103 rejection, Stokes et al '408 teaches that the use of lithium salt to prevent or inhibit alkali-silica reactions is not unique to cementitious material with embedded metals. Lithium salts can prevent alkali-silica reactions in cementitious material with no embedded metals. Thus, Stokes et al '408 does not teach that adding lithium salts will prevent corrosion of embedded metals in concrete. Neither does Stokes et al '408 provide a suggestion or motivation for adding lithium salt in cementitious materials with embedded metals to prevent or inhibit corrosion, of such embedded metals.

As for the rejection of claims 1-82 under 35 U.S.C. § 102(b) as anticipated by Foltz et al, U.S. Patent No. 5,985,011, the reference discloses a process and composition for controlling damage in cementitious materials comprising by adding a lithium containing material, such as lithium nitrate, to the cementitious material. Lithium salts are applied to a concrete surface for diffusion into concrete to prevent or lessen alkali-silica reactivity.

The use of lithium salt in Foltz et al -011 is not related to preventing corrosion of embedded metals in cementitious materials. Lithium salts are added to minimize alkali-silica reactions. Thus, Foltz et al '011 does not teach that adding lithium salts will prevent corrosion of embedded metals in cementitious materials.

As the present rejection of claims 1-82 do not encompass the limitation of adding lithium nitrate to cementitious material for preventing corrosion of embedded metals, the Applicant submits that all § 102 rejections must be withdrawn, as none of the references cited include all the elements of claims 1-82.

As for § 103 rejection, the use of lithium salt in Foltz et al '011 is not related to preventing corrosion of embedded metals in cementitious materials. Lithium salts are added to minimize alkali-silica reactions. Thus, Foltz et al '011 does not teach that adding lithium salts will prevent corrosion of embedded metals in cementitous materials with embedded metals for corrosion protection of embedded metals. Therefore, §103(a) rejection be withdrawn.

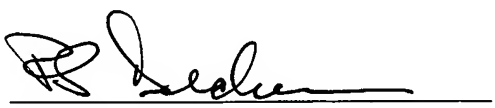
V. CONCLUSION

For the foregoing reasons, Applicants respectfully submit that claims 1-82 are in condition for allowance, and a notice for allowance is solicited. Should questions arise during examination, the Examiner is welcome to contact the Applicants' attorney at the telephone listed below.

Please charge any excess fees due and credit any overpayment to Charge Account No. 50-0423.

Respectfully submitted,

June 14, 2006



Robert J. Decker, In-House Patent Counsel
University of Virginia Patent Foundation 1224
West Main Street, Suite 1-110
Charlottesville, VA 22903
(434) 924-2640